

Amendment and Response

Applicant: John T. Strom et al.

Serial No.: 10/801,944

Filed: March 15, 2004

Docket No.: A126.250.102/044182-3087

Title: SYSTEM AND METHOD OF MEASURING PROBE FLOAT

IN THE CLAIMS

Please cancel claims 3, 5, 12, 14 and 18-20.

Please add claims 21-31.

Please amend claims 1, 4, 6, 9, 13, 15 as follows:

1. (Currently Amended) A method of calculating probe float; said method comprising:
acquiring a free-hanging planarity measurement comprising:
acquiring a reference planarity measurement by overtraveling a probe card to a
state of last electrical contact;
providing relative translation between a contact surface and said probe card;
identifying new free-hanging probes responsive to said providing;
assigning a planarity value to newly identified free-hanging probes; and
selectively repeating said providing, said identifying, and said assigning;
obtaining a first electrical contact planarity measurement; and
calculating probe float using results of said acquiring and said obtaining.
2. (Original) The method of claim 1 wherein said calculating comprises computing a difference between results of said obtaining and said acquiring.
3. (Cancelled)
4. (Currently Amended) The method of claim ~~3~~1 wherein said selectively repeating further comprises selectively iterating said providing, said identifying, and said assigning until a free-hanging planarity value has been assigned to every probe.
5. (Cancelled)

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6. (Currently Amended) The method of claim 3-1 wherein said acquiring a reference planarity measurement comprises utilizing an optical system.

7. (Original) The method of claim 6 wherein said identifying new free-hanging probes comprises utilizing said optical system.

8. (Original) The method of claim 6 wherein said providing relative translation comprises increasing a distance between said contact surface and said probe card of approximately half a depth of field associated with said optical system.

9. (Currently Amended) A method of measuring probe float in a probe card analyzer system; said method comprising:

acquiring a free-hanging planarity measurement for a probe in an array on a probe card,

comprising:

acquiring a reference planarity measurement by overtraveling said probe card to a state of last electrical contact;

providing relative translation between a contact surface and said probe card;

identifying new free-hanging probes responsive to said providing;

assigning a planarity value to newly identified free-hanging probes; and

selectively repeating said providing, said identifying, and said assigning.

obtaining a first electrical contact planarity measurement for said probe; and

calculating probe float using results of said acquiring and said obtaining.

10. (Original) The method of claim 9 wherein said calculating comprises computing a difference between results of said obtaining and said acquiring.

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11. (Original) The method of claim 9 further comprising repeating said acquiring, said obtaining, and said calculating for every probe in said array.

12. (Cancelled)

13. (Currently Amended) The method of claim ~~12~~9 wherein said selectively repeating further comprises selectively iterating said providing, said identifying, and said assigning until a free-hanging planarity value has been assigned to every probe in said array.

14. (Cancelled)

15. (Currently Amended) The method of claim ~~12~~9 wherein said acquiring a reference planarity measurement comprises utilizing an optical system.

16. (Original) The method of claim 15 wherein said identifying new free-hanging probes comprises utilizing said optical system.

17. (Original) The method of claim 15 wherein said providing relative translation comprises increasing a distance between said contact surface and said probe card of approximately half a depth of field associated with said optical system.

18-20. (Cancelled)

21. (New) A method of calculating probe float; said method comprising:
 acquiring a free-hanging planarity measurement comprising:
 acquiring a reference planarity measurement utilizing an optical system;

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providing relative translation between a contact surface and a probe card by
increasing a distance between said contact surface and said probe card of
approximately half a depth of field associated with said optical system;
identifying new free-hanging probes responsive to said providing;
assigning a planarity value to newly identified free-hanging probes; and
selectively repeating said providing, said identifying, and said assigning;
obtaining a first electrical contact planarity measurement; and
calculating probe float using results of said acquiring and said obtaining.

22. (New) The method of claim 21 wherein said calculating comprises computing a difference between results of said obtaining and said acquiring.

23. (New) The method of claim 21 wherein said selectively repeating further comprises selectively iterating said providing, said identifying, and said assigning until a free-hanging planarity value has been assigned to every probe.

24. (New) The method of claim 21 wherein said acquiring a reference planarity measurement comprises overtraveling said probe card to a state of last electrical contact.

25. (New) The method of claim 21 wherein said identifying new free-hanging probes comprises utilizing said optical system.

26. (New) A method of measuring probe float in a probe card analyzer system; said method comprising:

acquiring a free-hanging planarity measurement for a probe in an array on a probe card,
comprising:
acquiring a reference planarity measurement by utilizing an optical system;

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providing relative translation between a contact surface and said probe card by increasing a distance between said contact surface and said probe card of approximately half a depth of field associated with said optical system; identifying new free-hanging probes responsive to said providing; assigning a planarity value to newly identified free-hanging probes; and selectively repeating said providing, said identifying, and said assigning; obtaining a first electrical contact planarity measurement for said probe; and calculating probe float using results of said acquiring and said obtaining.

27. (New) The method of claim 26 wherein said calculating comprises computing a difference between results of said obtaining and said acquiring.

28. (New) The method of claim 26 further comprising repeating said acquiring, said obtaining, and said calculating for every probe in said array.

29. (New) The method of claim 26 wherein said selectively repeating further comprises selectively iterating said providing, said identifying, and said assigning until a free-hanging planarity value has been assigned to every probe in said array.

30. (New) The method of claim 26 wherein said acquiring a reference planarity measurement comprises overtraveling said probe card to a state of last electrical contact.

31. (New) The method of claim 26 wherein said identifying new free-hanging probes comprises utilizing said optical system.